WORLD INTELLECTUAL PROPERTY ORGANIZATION International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6: A3 A61B 17/00, 17/04, 19/00

(11) International Publication Number:

WO 97/32514

(43) International Publication Date: 12 September 1997 (12.09.97)

PT, SE).

(21) International Application Number:

PCT/US97/03320

(22) International Filing Date:

3 March 1997 (03.03.97)

(30) Priority Data:

08/610.619 08/692,992 4 March 1996 (04.03.96)

US 6 August 1996 (06.08.96) US Published With international search report.

Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(71) Applicant: HEARTPORT, INC. [US/US]; 200 Chesapeake Drive, Redwood City, CA 94063 (US).

(72) Inventors: FLOM, James, R.; 2557 Park Boulevard #L102, Palo Alto, CA 94306 (US). MANGOSONG, Lorraine; 2994 Cheswycke Terrace #352, Fremont, CA 94536 (US). PETERS, William, S.: 59 Brighton Road, Unit 2, Elwood, VIC 3184 (AU). GARRISON, Michi; 2325 Casa Bona Avenue, Belmont, CA 94002 (US). FRISCHMEYER, Karen; 775 Chimahus Drive, Palo Alto, CA 94306 (US). KRIER, Jeffrey; 651 Avenue Cabrillo, El Granada, CA 94018 (US). MUELLER, Richard, L.; 2305 Cypress Point, Byron, CA 94514 (US). BOYD, Stephen, W.; 333 Palomar Drive, Redwood City, CA 94062 (US).

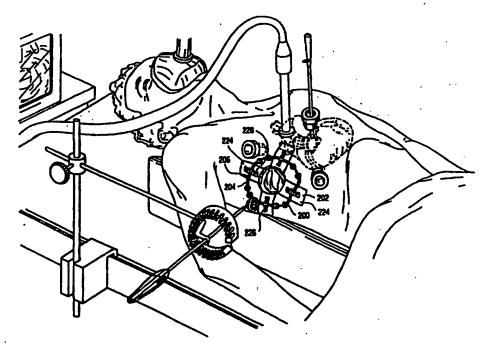
(88) Date of publication of the international search report: 6 November 1997 (06.11.97)

(81) Designated States: AU, CA, JP, European patent (AT, BE,

CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,

(74) Agents: HESLIN, James, M. et al.; Townsend and Towsend & Crew LLP., 8th floor, Two Embarcadero Center, San Francisco, CA 94111-3834 (US).

(54) Title: RETRACTOR FOR PROVIDING SURGICAL ACCESS AND SUITURE ORGANIZER



(57) Abstract

This invention is a flexible, length-adjustable suture organizer (200) coupled to a retractor (202) having a number of flexible straps (224). The streps are tensioned to retract tissue, while the summe organizer is used to retain summes extending through an opening created by the retractor. The retractor includes a holder (226) which retains the suture organizer.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi	
AT	Austria	GE.	Georgia	MX	Mecico	
AU	Australia	GN	Culnes	NE	Niger	
1535	Barbados	GR	General	NL	Netherlands	
BE	Belgium	HU	Hungary	NO	Norwity	
	Burking Page	re.	Iroland	NZ	New Zealand	
BG	Bulgaria	rr	kaly .	PL.	Poland	
IJ	Desin	JP	Japan	TT	Portugal	
BR	Brazil	KE	Кснув	RO	Romania	
BY	Belows .	KG	Kyngystes	RU	Russian Federation	
CA	Canada	KP	Democratic People's Republic	SD	Sudan	
CF	Central African Republic		of Korea	SE	Sweden	
CG	Coago	· KR	Republic of Kome	SG	Singapore	
CII	Switzerland	KZ	Kazakhetan	. 52	Slovenia	
Œ	Chie d'Ivoke	Ц	Lichtentols	SK	Slovskie	
CN	Chanceson	LK	Sri Lanka	SN	Scaegal	
CN	China	LR	Liberia	57.	Swaziland	
CS	Czechoslovakia	LT	Lithyania	TD	Ched	
Œ	Czech Republic	LU	Laxenbourg	TG	Tago	
DE	Germany	LV	Lavia	· TJ	Tajikistan	
DK	Denmark	MC	Monaco	17	Trinklad and Tobego	
ER	Estonia	MD	Republic of Moldova	UA	Ukraine	
ES	Spala	MG	Madaguscur	UG	Uganda	
FI	Finland	ML	Mali	US	United States of America	
FIL	France	MN	Mongolla	ᄠ	Uzbekistan	
GA	Gabon	MR	Mauritzaia.	VN	Vict Nam	

INTERNATIONAL SEARCH REPORT

International application No. PCT/US97/03320

		<u> </u>
	ASSIFICATION OF SUBJECT MATTER	
IPC(6)	:A61B 17/00, 04; 19/00	
	:600/201 to International Patent Classification (IPC) or to both national classification and IPC	
	LDS SEARCHED	
	documentation searched (classification system followed by classification symbols)	
	128/898; 600/201, 204, 206, 208, 210, 209, 215, 226, 227, 231, 233, 235, 245; 606/1, 2	
Documenta	ation searched other than minimum documentation to the extent that such documents are include	d in the fields searched
	data hase consulted during the international search (name of data base and, where practicable See Extra Sheet.	e, search terms used)
C. DOC	CUMENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,391,156 A (HILDWEIN et al.) 21 February 1995, entire document.	1-3, 7, 12, 28, 29, 81
X Y	US 5,213,114 A (BAILEY, JR.) 25 May 1993, entire document.	1-6, 9-11, 15- 23, 27, 50-54, 56-61, 81
		7, 8, 14, 24-26, 30-36, 55, 62
Y	US 4,412,532 A (ANTHONY) 01 November 1983, Fig. 2; and col. 3, lines 48 and 49.	7, 8, 24-26
r	US 4,562,832 A (WILDER et al.) 07 January 1986, Fig. 1.	14, 30-36
		·
X Furthe	er documents are listed in the continuation of Box C. See patent family annex.	
docu	cal categories of cited documents: There document published after the inter- date and not in conflict with the applicat microscoping the general state of the art which is not considered principle or theory underlying the inve-	son but cited to understand the
10 00	er ducument published od or after the international filing date "X" document of particular relevance; the considered novel or cannot be considered novel or cannot be considered.	chinel invention cannot be
cned	intent which may throw doubts on priority claim(s) or which is when the document is taken alone I be establish the publication date of another citation or other all reason (as specified) document of particular relevance; the	
	man reterring to se eral disclosure, use, exhibition or other combined with one or more other such	step when the document is documents, such combination
the p	more published poses to the international filing date but later than "A" document member of the same patent f	
ite of the ac	Date of mailing of the international search ABER 1997 Date of mailing of the international search 2 3 SEP 1997	ch report
Commissione Box PCT	of Patents and Trademarks JEFFREY A. SMITH	
Vashingwa, I csimile No	D.C. 20231 JEFFREY A. SMITH (703) 305-3230 Telephone No. (703) 308-3588	

Form PCT/ISA 210 (second sheetKJuly 1992)=

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/03320

Calegory	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No	
ζ	US 3,473,528 A (MISHKIN et al.) 21 October 1969, entire document.	63, 64, 68-71, 73, 74	
	US 4,274,398 Å (SCOTT, JR.) 23 June 1981, entire document.	63, 64, 68, 69, 71, 73, 74	
ς	US 4,492,229 A (GRUNWALD) 08 January 1985, Fig. 5.	76	
3	US 5,476,510 A (EBERHARDT et al.) 19 December 1995, Figs. 3 and 4.	47-49	
	US 4,387,706 A (GLASS) 14 June 1983, Fig. 4.	37-48	
	· · · · · · · · · · · · · · · · · · ·	,	
		ŀ	
	·		
	•		
I			

Form PCT/ISA/210 (continuation of second sheet)(July 1992)*

INTERNATIONAL SEARCH REPORT

International application No. PCT/US97/03320

APS								
Search Terms: suture#, organiz?, suture organizer, retract?, 600/clas, hold?, flexible?, adjust?, suture holder#, slits, deliver? or placement or insert?, tool, 606/1/ccls, cardi?, heart, intercostal, tension?								
	•							
			•					
					•			
		•						
					•			
			•		•			
•								
		•						
	•							

Form PCT/ISA/210 (extra sheet)(July 1992)*